

Expert Commentary Series

Don't Sacrifice The Good For The Perfect: A Review of Cathy Jameson's "A Strong Message About Vaccines." (*Age of Autism*, January 18, 2015)

by Joel A. Harrison, PhD, MPH
February 4, 2015

Executive Summary

Despite ever increasing outbreaks of vaccine-preventable diseases, resulting in unnecessary suffering, hospitalizations, long-term disabilities, and even deaths, the number of parents opting not to vaccinate their children is increasing. Websites abound encouraging parents to "rethink" vaccinations, that is, to avoid them. Should one pay heed to these warnings? Not if they display a lack of understanding of basic scientific principles and methods. Not if they display poor scholarship. And not if they display a blatant lack of common sense.

A recent article on *Age of Autism*, one of the more popular and influential antivaccination websites, displays a typical lack of any of the above. The author, Cathy Jameson, is a Contributing Editor to *Age of Autism*.

According to *Age of Autism*: "We are published to give voice to those who **believe** [my emphasis] autism is an environmentally induced illness." I emphasized the word "believe" as this paper clearly shows that Jameson's article reflects her antivaccination beliefs, devoid of any scholarly scientific information and based on an illogic that if applied consistently would have devastating consequences.

Jameson writes: "How can anyone continue to say that vaccines work and that they are effective when people who are vaccinated come down with the very disease the vaccine was supposedly going to prevent? Sadly, we hear nothing of that in these types of news stories. We hear nothing of how for those 11 people that the vaccines failed. That the vaccines were obviously not effective. But so says the vaccine industry. So says those benefiting from its profits."

In a second article posted a few days afterwards, "A Very Brady Measles" (*Age of Autism*, January 25, 2015), Jameson, apparently, bases her knowledge of measles either completely or mainly on a TV sitcom, the Brady Bunch, writing: "a TV family portrayed what real-life families encountered - surviving a short-lived disease . . . [just a] common disease of childhood."

To Summarize this Paper:

Jameson, posting an article on *Age of Autism*, a website where beliefs trump logic, science, and common sense, finds fault with the measles vaccine because it isn't 100% effective. She complains that we

are not told that vaccines don't work 100% of the time, even though a web search would find this information and anyone assuming any medical intervention works all the time would be naive and foolish. Using her illogic, one would reject just about all interventions, ranging from penicillin to seat belts; although each have saved millions of lives, some have died despite their use.

In the real world, measles is a serious disease, "an entire birth cohort of approximately 4 million persons was infected annually. Associated with these cases were an estimated 500 deaths, 150,000 cases with respiratory complications, 100,000 cases of otitis media, 48,000 hospitalizations, 7,000 seizure episodes, and 4,000 cases of encephalitis, which left up to one quarter of patients permanently brain damaged or deaf." (Strebel, 2013, p.358) Even for the families of children who didn't experience any of the above, "the initial symptoms usually include a high fever (often $> 40^{\circ}\text{C}$ [104°F]) . . . malaise, loss of appetite, hacking cough (although this may be the last symptom to appear), runny nose and red eyes. After this comes a spot-like rash that covers much of the body. The course of measles, provided there are no complications, such as bacterial infections, usually lasts about 7–10 days." So, even the normal course of measles involves a week or more of suffering, a week or more of missing school, and a week or more of a parent staying home from work to take care of the child.

Regarding Jameson's implication that the vaccine industry cannot be trusted because they benefit from profits on their products, then one should not trust any product since everything sold is done so to make a profit. Using Jameson's logic, nothing we purchase can be trusted. The car companies build the cost of seat belts into the price of cars and the pharmaceutical industry makes a profit on antibiotics, insulin, and everything else they sell. Vaccines are complex biologics that are expensive to produce and have much more stringent regulatory burdens attached to them than for other drugs. Further, persons use vaccines only a few times throughout their lives, whereas many drugs require daily use, often for a lifetime. Drugs certainly generate more revenue than vaccines. An analysis of sales data from 2013 indicated that vaccine sales constituted only 1.82% of "Big Pharma's" total annual revenues. The author of this analysis concluded that this is "essentially a rounding error in estimating revenues." In other words, the sales from vaccines is so insignificant in the context of total pharmaceutical sales that it's practically not worth including when estimating revenue. (Skeptical Raptor, 2014)

The irony of this is that if vaccine manufacturers were to stop making vaccines their public image, already tarnished, would take an even bigger hit.

It would be nice if medical science could develop vaccines that worked 100% of the time with zero possibility of even the mildest side effects and perhaps someday they will or at least get close; but what we have today are vaccines that are exponentially safer than the actual diseases. Given the inaccuracies in Jameson's article and the fact that *Age of Autism* actually posted it, says a lot about the website, namely, that its articles lack any credibility. For another example of the poor scholarship, poor science, and deficient common sense displayed on *Age of Autism*, see my previous ECBT article (Harrison, 2015) and stay tuned for future ones.

In conclusion, Jameson literally doesn't know what she is talking about. With vaccines, she sees the glass as, say 5% empty, rather than as 95% full. She sees a TV sitcom as giving an accurate portrayal of the real world. This is more than a lack of common sense, it's a prime example of the Nirvana fallacy of comparing actual things with unrealistic, idealized alternatives, creating a false dichotomy. Though it's unfortunate that the measles vaccine doesn't perfectly protect everyone, it does protect

most, preventing unnecessary suffering, hospitalizations, disabilities, and even deaths. And, if everyone were vaccinated, then the risks to those with weaker immune systems would also be significantly reduced. In other words, “Don’t Sacrifice the Good for the Perfect”!

Introduction

le mieux est l'ennemi du bien

[the perfect is the enemy of the good] - Voltaire

Despite ever increasing outbreaks of vaccine-preventable diseases, resulting in unnecessary suffering, hospitalizations, long-term disabilities, and even deaths, the number of parents opting not to vaccinate their children is increasing. Websites abound encouraging parents to “rethink” vaccinations, that is, to avoid them. Should one pay heed to these warnings? Not if they display a lack of understanding of basic scientific principles and methods. Not if they display poor scholarship. And not if they display a blatant lack of common sense.

A recent article on *Age of Autism*, one of the more popular and influential antivaccination websites, displays a typical lack of any of the above. The author, Cathy Jameson, is a Contributing Editor to *Age of Autism*.

According to *Age of Autism*:

We are published to give voice to those who **believe** [my emphasis] autism is an environmentally induced illness, that it is treatable, and that children can recover. For the most part, the major media in the United States aren't interested in that point of view, they won't investigate the causes and possible biomedical treatments of autism independently, and they don't listen to the most important people – the parents, many of whom have witnessed autistic regression and medical illness after vaccinations. We do all those things, and more. (Olmsted, A Letter from the Editor, *Age of Autism*, <http://www.ageofautism.com/a>Welcome-from-dan-olmste.html>)

I emphasized the word “believe” in the above as it will become apparent from the following that Jameson's article reflects her antivaccination beliefs, devoid of any scholarly scientific information and based on an illogic that if applied consistently would have devastating consequences.

According to Jameson:

Dr. Zahn, who was recently interviewed about the measles in California, said that vaccines work. He said that they are safe. He said it confidently on national news. If he's absolutely sure that vaccines work and that they are safe, why did 11 people of the 26 known measles cases come down with the measles? Those 11 were vaccinated.

How on earth did they catch the measles if they were vaccinated?

Saying that someone is immunized might lead others to believe that immunity can be gained. Gaining immunity through vaccination is no guarantee.

How can anyone continue to say that vaccines work and that they are effective when people who are vaccinated come down with the very disease the vaccine was supposedly going to prevent? Sadly, we hear nothing of that in these types of news stories. We hear nothing of how for those 11 people that the vaccines failed. That the vaccines were obviously not effective.

But so says the vaccine industry. So says those benefitting from its profits.

To answer Ms. Jameson's question, there are a number of reasons that vaccinated children can still contract disease:

1. Following vaccination, it can take several weeks for the immune system to mount an effective response. In the case of measles, protection is mediated mostly by virus-specific neutralizing antibodies, which develop two to four weeks following vaccination. A person infected by measles prior to development of neutralizing antibodies may not be protected.
2. The immune system in some children is weak and may not respond to vaccine as well as in other children. This could be a genetic trait, or could be caused by stress or ongoing infections by other agents.
3. Sometimes the force of infection is so great that the immune system cannot combat it. For example, one may be protected against incidental contact by a person shedding measles virus, but not against a high load of virus that might be encountered through sharing of a soda with a person actively shedding virus. Think of seat belts. They certainly save lives and prevent serious injuries and disabilities; but not always. In an accident at high speeds or with a much heavier vehicle, they do little good. Whether someone becomes infected or not depends on their own immune system, how soon it recognizes the invading microbe and how well it responds, together with the dose, the duration of exposure, and the virulence of the particular microbe. A number of the currently infected children were from clusters of unvaccinated children. Not only was there no herd immunity to break the chain of infection; but these children likely experienced multiple exposures.

However, even if one's weak immune response does not confer complete protection, being vaccinated often results in a less serious and/or shorter disease duration. In addition, if a vaccinated child with a weak immune system is infected by another vaccinated child with a weak immune system, the latter's immune system would still be working, though not at the highest level, and, thus, shedding fewer viruses. The other vaccinated child's immune system, though weak might better be able to handle this. If all the children had been vaccinated, then if someone with a weak immune system who was vaccinated had not developed complete immunity, they would either be able to fight off the infection or experience a milder one and would be shedding fewer viruses. In other words, the more children vaccinated, the better.

With regard to Jameson's statement: "We hear nothing of how for those 11 people that the vaccines failed. That the vaccines were obviously not effective," this is not difficult to refute.

According to the CDC:

Approximately 2%–5% of children who receive only one dose of MMR vaccine fail to respond to it (i.e., primary vaccine failure). MMR vaccine failure may occur because of

passive antibody in the vaccine recipient, damaged vaccine, incorrect records, or possibly other reasons. Most persons who fail to respond to the first dose will respond to a second dose. Studies indicate that more than 99% of persons who receive two doses of measles vaccine (with the first dose administered no earlier than the first birthday) develop serologic evidence of measles immunity. (CDC, 2012, pp.181-182)

Given that two doses of measles vaccine is expected to protect 99% of recipients, which by all accounts is a remarkable level of efficacy, a small number among a large population of vaccines would be vulnerable.

And a CDC webpage, “Measles - Q&A about Disease & Vaccine” states: “How effective is MMR vaccine? More than 95% of the people who receive a single dose of MMR will develop immunity to all 3 viruses. A second vaccine dose gives immunity to almost all of those who did not respond to the first dose.” (CDC, 2008)

The Vaccine Education Center at The Children’s Hospital of Philadelphia’s website also states (2013): “About 95 of every 100 children will develop immunity after one shot, but about 99 of 100 children will develop immunity to measles after two shots. Immunizing that additional 4 percent of children is important when trying to protect against a disease as highly contagious as measles.”

On the Immunization Action Coalition’s website can be found: “Why is a second dose of MMR necessary? Between 2% and 5% of people do not develop measles immunity after the first dose of vaccine. This occurs for a variety of reasons. The second dose is to provide another chance to develop measles immunity for people who did not respond to the first dose.

A recent review stated: “We included five randomised controlled trials (RCTs), one controlled clinical trial (CCT), 27 cohort studies, 17 case-control studies, five time-series trials, one case cross-over trial, two ecological studies, six self controlled case series studies involving in all about 14,700,000 children and assessing effectiveness . . . of MMR vaccine. Based on the available evidence, one MMR vaccine dose is at least 95% effective in preventing clinical measles and 92% effective in preventing secondary cases among household contacts.” (Demicheli, 2012)

Thus, it should be clear from the above that, though highly effective, no one is claiming 100% effectiveness and numerous websites and journal articles make this clear.

From the College of Physicians of Philadelphia’s History of Vaccines Website (2014):

The “More Vaccinated Than Unvaccinated People Get Sick” Misconception

When there’s an outbreak of a disease that’s rare for a given area, such as measles in the United States, unvaccinated people aren’t the only ones at risk. Because no vaccination is 100% effective, some vaccinated individuals will get the disease as well. In fact, during an outbreak, the number of vaccinated individuals who get sick will often outnumber the unvaccinated people who get sick. This, however, is not because vaccines are

ineffective, but because there are so few people who avoid vaccination in the first place. Look at the numbers for a hypothetical outbreak:

You have a group of 500 people who have been exposed to an outbreak of a rare disease. Of those 500 people, 490 have been vaccinated; 10 have not. Different vaccines provide different rates of protection, but in this case, let's assume that 98 of every 100 people who are vaccinated will successfully develop immunity against the disease.

When exposed to the outbreak, all 10 of the unvaccinated individuals get the disease. What about the 490 who were vaccinated?

Based on the assumption of 98 of every 100 people developing successful immunity (leaving two of the 100 unprotected), about 10 of the 490 vaccinated individuals will get the disease—the same as the number of unvaccinated individuals.

Those numbers, however, don't take into account the percentage of vaccinated and unvaccinated individuals who got sick. Of those who fell ill, 10 had been vaccinated and 10 had not. But the 10 who had been vaccinated are only $(10 / 490) = 2\%$ of the individuals who had been vaccinated in the population of 500. The 10 who hadn't been vaccinated are $(10 / 10) = 100\%$ of those who weren't vaccinated. The final results of the outbreak, therefore, look like this:

- Population size: 500
- Vaccinated individuals: 490
- Unvaccinated individuals: 10
- Percentage of vaccinated individuals who fell ill: 2%
- Percentage of unvaccinated individuals who fell ill: 100%

Further, of those few vaccinated persons contracting diseases, the course of the infection (symptoms) is much milder than in unvaccinated persons. Thus, not only would the incidence of measles in the above hypothetical scenario be reduced by 98% due to vaccination, but the 2% that did contract disease would experience far fewer and far less severe symptoms than had their parents opted to not vaccinate them during childhood.

For a more detailed discussion of the effectiveness of the measles vaccine, see Strelbel, 2013, especially section “Effectiveness of protection: Measures of Protection” pp. 365-366. Though specific newspaper articles may not have clearly explained that the measles vaccine or any vaccine is not completely effective in protecting people, it is rather naive and foolish to believe any medical intervention comes with a 100% guarantee. If Jameson had searched the web, she would have found the above as well as much more.

Compared to What?

One of the main flaws in antivaccinationist reasoning involves either ignoring the risks from naturally-occurring diseases and/or downplaying them.

Measles is a serious disease. Unfortunately, the success of vaccinations has created an “out of sight, out of mind” mentality. “In the United States in the prevaccine era, approximately 500,000 cases of measles were reported each year, but, in reality, an entire birth cohort of approximately 4 million persons was infected annually. Associated with these cases were an estimated 500 deaths, 150,000 cases with respiratory complications, 100,000 cases of otitis media, 48,000 hospitalizations, 7,000 seizure episodes, and 4,000 cases of encephalitis, which left up to one quarter of patients permanently brain damaged or deaf.” (Strebel, 2013, p.358) Our population has almost doubled since then. Given that measles is just as infectious as ever and is just a plane flight away, as the current outbreak demonstrates, without vaccinations the above numbers could be significantly higher.

Prior to the development of antibiotics, opportunistic bacterial pneumonias killed many more. Given a much larger population and the increasing risk of deaths from secondary bacterial pneumonias due to increasing rates of antibiotic-resistant microbes, without vaccination, the number of deaths could be significantly higher. (Levy, 1992; O’Neill, 2014; Schnayerson, 2002)

Even for the families of children who didn’t experience any of the above, “the initial symptoms usually include a high fever (often $> 40^{\circ}\text{C}$ [104°F]) . . . malaise, loss of appetite, hacking cough (although this may be the last symptom to appear), runny nose and red eyes. After this comes a spot-like rash that covers much of the body. The course of measles, provided there are no complications, such as bacterial infections, usually lasts about 7–10 days.” (Wikipedia, “Measles) So, even the normal course of measles involves a week or more of suffering, a week or more of missing school, and a week or more of a parent staying home from work to take care of the child.

To put in perspective, for instance, according to one study, an incidence of 0.34 cases of encephalitis per million doses of vaccine occurred compared with 586.80 cases from naturally occurring measles (Block, 1985). In other words, the odds for encephalitis from the natural disease was 1,725 times greater than from the vaccine. Similar statistics can be found for every vaccine-attributed adverse event, many with even greater odds in favor of the vaccine and with longer durations and often more severe from the natural disease, including death, an outcome not occurring with the vaccine. Given that prior to the advent of vaccinations, virtually all children got measles, it would be logical to assume that, at least, a significant portion of the children experiencing adverse reactions from the vaccine would have also experienced the same or worse reactions from the natural disease.

Seat Belts:

Safety and preventive medicine have always been a primary concern of mine. In 1969, while in grad school, I purchased my first car. It had lap seat belts and without thinking I buckled up. I also began requiring any passengers to buckle up as well. This was years before the first government campaigns to buckle up and long before seat belts became mandated by law.

According to a report from the CDC: “Seat belts . . . reduce the risk for fatal injuries from motor vehicle crashes by approximately 45% and serious injuries by approximately 50%.” (CDC, 2011, p.1681) However, seat belts can also cause injuries. “At rare times, the seat belt itself may cause further injury. While the majority of seat belt injuries are minor - and even expected especially in serious high-impact crashes — some injuries caused by seat belts can be serious . . . Most seat belt injuries are minor and

involve bruising and scrapes from restraints, depending on the severity of the collision . . . The most severe injuries that can be caused by (or exacerbated by) seat belts include fractures, dislocations, internal bleeding, spine injuries, and intestinal injuries.” (Goguen, 2015; see also: Bandstra, 1998; Greingor, 2006; Hill, 1994) Proper wearing of seat belts can reduce the above. (Goguen, 2015)

So, seat belts don’t prevent all fatal injuries nor do they prevent all serious injuries and they can even cause injuries, though while preventing more serious ones. A slight modification of Jameson’s question would read: How can anyone continue to say that *seat belts* work and that they are effective when people who *use seat belts incur injuries from the very accidents the seat belts were supposedly going to prevent?* Unfortunately, seat belts don’t work all the time; but compared to what?

According to the National Highway Traffic Safety Administration: Seat belts “saved an estimated 12,174 lives” in 2012 and “nearly 63,000 lives during the 5-year period from 2008 to 2012.” (NHTSA, 2013; see also: Intas, 2010) “Seat belt use reduces the likelihood of serious injury in a crash by approximately 50%. . . NHTSA estimates that, in 2009, nearly 450 additional lives would have been saved, 12,000 nonfatal injuries prevented, and \$1.6 billion in societal costs saved if all states had primary seat belt enforcement laws.” (CDC, 2011) “Primary enforcement laws allow police officers to stop drivers and issue tickets solely because occupants are unbelted. Secondary enforcement laws only allow police officers to issue tickets for seat belt violations if drivers have been stopped for violating some other law.” (ibid, p. 1680)

So, given Jameson’s logic or better said, illogic, should we rescind mandatory seat belt laws? And once rescinded, should people stop buckling up?

What About Vaccines and Profits?

According to Jameson: “But so says the vaccine industry. So says those benefitting from its profits.”

Vaccines are very difficult to produce. Vaccines are biologics, whereas most other drugs are not (Gomez, 2013). Take the flu vaccine. Each lot of vaccine requires injecting hundreds of thousands of eggs with each of the chosen influenza virus strains for any given season. Those eggs have to be monitored and incubated for several days before the allantoic fluid from each egg is collected, pooled, inactivated, and purified through complex ultrafiltration and centrifugation procedures. Every step of the manufacturing process must be tightly controlled and an enormous amount of testing is conducted, including sterility, identity, purity, potency, antigen concentration, and numerous tests to ensure the absence of specific process residuals. The entire process from growing the live viruses that will be used in the manufacturing process to the final filling and lyophilization (freeze-drying) of vials for a single vaccine lot can take months. In addition, the regulations governing vaccines are much more stringent and costly than other pharmaceuticals.

Randomized clinical trials for vaccines require much larger samples, usually over 3,000 study subjects. For example, for the RotaTeq Vaccine for preventing rotavirus:

The study population included 85,150 infants vaccinated with at least one dose of RotaTeq and 62,617 vaccinated with at least one dose of DTaP between January 2006 and December 2007 (inclusive) and followed through March 2009. Among the 85,150

infants with at least one RotaTeq vaccination, 70,998 infants received a second dose and 53,923 infants received a third dose by the end of follow-up in March 2009. For the 0-30 day follow-up window following any dose, there were 17,433 person-years among infants receiving RotaTeq and 12,339 person-years among the concurrent DTaP comparators. This follow-up time gave rise to 6 confirmed cases of IS [Intussusception] among infants vaccinated with RotaTeq for an incidence rate of 0.3 per 1000 person-years (95% confidence interval of 0.13-0.75), compared with a background rate (based on medical literature) of 0.5 per 1,000 person-years. (FDA, 2011)

A previous vaccine for rotavirus, RotaShield, based on clinical trials with approximately 10,000 infants was found to increase the risk of intussusception over that posed by the wild virus, resulting in it being rapidly withdrawn from the market. Since intussusception, a serious bowel disorder, was too rare to be detected with even 10,000 infants, the study size for the RotaTeq vaccine was increased substantially, resulting in a finding that the risk from the vaccine was actually less than from the wild virus (CDC, 2014)

FDA inspections must also be performed, not only as a condition for license approval, but regularly for the life of the product. (CDC, 2012; Baylor, 2013; Offit, 2013). In 2004, an entire company's flu vaccine production was deemed unsafe because of contamination by one bacteria (Roos, 2004). Most childhood vaccines (with the exception of the flu vaccine which has to be produced from scratch every year) are given only a few times during a lifetime, compared to drugs that incur a lifetime of use such as the statin drugs for lowering lipid levels. These difficulties make vaccines less attractive to manufacturers and make the market more limited and vulnerable to shortages. These difficulties make vaccines less attractive to manufacturers (CDC, 2015).

Despite these issues, vaccines are profitable. For example, "RotaTeq [the vaccine that protects against rotavirus infection] costs a little under \$4 a dose to make, according to Offit. Merck has sold a total of more than 24 million doses in the US, most for \$69.59 a pop — a 17-fold markup. Not bad, but pharmaceutical companies do sell a lot of vaccines at cost to the developing world and in some cases give them away. Merck committed \$75 million in 2006 to vaccinate all children born in Nicaragua for three years. In 2008, Merck's revenue from RotaTeq was \$665 million. Meanwhile, a blockbuster drug like Pfizer's Lipitor is a \$12 billion-a-year business." (Wallace, 2009)

Although vaccines are profitable, an analysis of sales data from 2013 indicated that vaccine sales constituted only 1.82% of "Big Pharma's" total annual revenues. The author of this analysis concluded that this is "essentially a rounding error in estimating revenues." In other words, the sales from vaccines is so insignificant in the context of total pharmaceutical sales that it's practically not worth including when estimating revenue. (Skeptical Raptor, 2014)

It is absurd to assume any company will produce any pharmaceutical without realizing some profit. However, the profits from vaccines, with all the hurdles and costs, pale next to profits from other drugs. If making a profit automatically means a drug shouldn't be trusted, then what does Jameson say about all the other drugs we use, which include highly beneficial ones such as antibiotics as well as those less so? Every single product on the market is there because a company profits by its sale. It's also hypocritical when *Age of Autism* articles and the website promote various versions of so-called

Complimentary and Alternative Medicines, e.g. naturopathic remedies, in that they also are sold to make a profit.

Medical Knowledge from the Brady Bunch

I sometimes wonder where some of the antivaccinationists get their ideas about infectious diseases. It's certainly not from studying the history of measles, not from monitoring the WHO reports on measles outbreaks, and not from any knowledge of just how serious measles can be (see above "Compared to What?"). Thanks to vaccines, many have never seen first-hand any of the diseases they prevent, despite the fact that they still exist in the world, and are but a plane-flight away. After finishing the first draft of this article, Jameson posted a second article on *Age of Autism* that I think says a lot about her deficient knowledge of medical science and also her lack of common sense. In an article entitled "A Very Brady Measles" (*Age of Autism*, January 25, 2015), Jameson writes:

Before media hysteria became the norm, getting the measles was a punch line. Instead of freaking out, *a TV family portrayed what real-life families encountered* [my emphasis] - surviving a short-lived disease. These families managed the illness. They responded with common sense. They treated the symptoms and worked around what tended to be a temporary situation.

Things are so different today. Illness is a bad word. What used to be called a *common childhood disease* [my emphasis] is now viewed as impending doom. Fevers, rashes and sicknesses that last longer than a few hours are treated like the plague. Anything that can be passed from one person to another is a death sentence. These types of exaggerations fill many news stories. With those exaggerations, as well as how other fear tactics are used, including the mantra that the almighty vaccine is the answer no matter the question, no wonder people feel anxious about disease today!

Nowadays, rather than promote natural immunity, we're being ushered and demanded to get vaccines. I have to ask why, especially why the measles vaccine (MMR), when *this particular vaccine clearly isn't working*. [my emphasis] We know that it isn't working because several of the people who came down with the measles in the recent Disney outbreak were vaccinated. That fact – that vaccinated individuals got the disease that their vaccine was supposed to prevent – negates the current media feeding frenzy.

"A TV family portrayed what real-life families encountered", yup, and Ozzie, from *Ozzie and Harriet*, was always home, never at work. Incredible that Jameson thinks that a TV sitcom in any way represents the real world. I wonder if Jameson thinks the sitcom "Hogan's Heroes" gave an accurate portrayal of a World War II Nazi Germany prisoner of war camp?

The fact that measles used to be one of the "common childhood diseases" doesn't mean it wasn't serious. "Common" means most got it. I guess Jameson would consider smallpox as a "common disease" of the 1700s when it came in waves every so many years and killed off about a third of the population (Wikipedia, "Smallpox"). Yup, it was a "common" disease. And flu, a common disease, comes every year, on average killing more than 30,000 Americans and hospitalizing many more (Wikipedia, "Influenza"); in the pandemic of 1918-1919, between 500,000 and 675,000 people died in the US (Wikipe-

dia, “1918 Flu Pandemic”). And the Asian Flu of 1957-58 killed about 69,800 Americans (Wikipedia, “Influenza A Virus Subtype H2N2”)

Just to be clear, unfortunately repeating myself, as I wrote above about measles: “an entire birth cohort of approximately 4 million persons was infected annually. Associated with these cases were an estimated 500 deaths, 150,000 cases with respiratory complications, 100,000 cases of otitis media, 48,000 hospitalizations, 7,000 seizure episodes, and 4,000 cases of encephalitis, which left up to one quarter of patients permanently brain damaged or deaf.” (Strebel, 2013, p.358) Even for the families of children who didn’t experience any of the above, “the initial symptoms usually include a high fever (often $> 40^{\circ}\text{C}$ [104°F]) . . . malaise, loss of appetite, hacking cough (although this may be the last symptom to appear), runny nose and red eyes. After this comes a spot-like rash that covers much of the body. The course of measles, provided there are no complications, such as bacterial infections, usually lasts about 7–10 days.” (Wikipedia, “Measles) So, even the normal course of measles involves a week or more of suffering, a week or more of missing school, and a week or more of a parent staying home from work to take care of the child. So Jameson gets her picture of measles from a TV sitcom and, once again, displays her incredible belief that if any intervention doesn’t work all the time (with no understanding of the dynamics discussed above of why vaccines don’t always work), then why bother.

Conclusion

Jameson, posting an article on *Age of Autism*, a website where beliefs trump logic, science, and common sense, finds fault with the measles vaccine because it isn’t 100% effective. She complains that we are not told that vaccines don’t work 100% of the time, even though a web search would easily find this information and anyone assuming any medical intervention works all the time would be naive and foolish. Using her illogic, one would reject almost all medical interventions. Though penicillin literally saved millions of lives, even before the rise of antibiotic resistance to it, some people died despite its use. So why bother, at least, according to Jameson? Seat belts don’t always save lives nor prevent serious injuries and neither do vaccines or penicillin.

Jameson’s illogic represents a prime example of the Nirvana fallacy. According to Wikipedia:

The nirvana fallacy is a name given to the informal fallacy of comparing actual things with unrealistic, idealized alternatives. It can also refer to the tendency to assume that there is a perfect solution to a particular problem. A closely related concept is the **Perfect solution fallacy** . . . By creating a false dichotomy that presents one option which is obviously advantageous—while at the same time being completely implausible—a person using the nirvana fallacy can attack any opposing idea because it is imperfect. Under this fallacy, the choice is not between real world solutions; it is, rather, a choice between one realistic achievable possibility and another improbable solution. . . The **perfect solution fallacy** . . . occurs when an argument assumes that a perfect solution exists and/or that a solution should be rejected because some part of the problem would still exist after it were implemented. This is an example of black and white thinking, in which a person fails to see the complex interplay between multiple component elements of a situation or problem, and, as a result, reduces complex problems to a pair of binary extremes.”(Wikipedia, “Nirvana Fallacy”)

The car companies build the cost of seat belts into the price of cars and the pharmaceutical industry makes a profit on antibiotics, insulin, and everything else they sell. If making a profit means one can't trust a product, then, since everything that is sold is done so to make a profit, nothing we purchase can be trusted. Vaccines are complex biologics that are expensive to produce and have much more stringent regulatory burdens attached to them than for other drugs. Further, persons use vaccines only a few times throughout their lives, whereas many drugs require daily use, often for a lifetime, e.g. statins to lower cholesterol. If profit were the sole driving force, companies would probably discontinue their manufacture. However, if they did, their public image, already tarnished, would take an even bigger hit.

It would be nice if medical science could develop vaccines that worked 100% of the time with zero possibility of even the mildest side effects and, perhaps someday they will or at least get close; but what we have today are vaccines that are exponentially safer than the actual diseases. *Age of Autism*'s posting of the Jameson article, which lacks any credibility, is indicative of the lack of scientific rigor and common sense required to post on the website. For another example of the poor scholarship, poor science, and deficient common sense displayed on *Age of Autism*, see my previous ECBT article (Harrison, 2015) and stay tuned for future ones.

Apparently, Jameson's knowledge of measles is either completely or mainly based on TV. For Jameson, a TV sitcom gives an accurate portrayal of the real world. This is more than a lack of common sense, it's a prime example of the Nirvana fallacy of comparing actual things with unrealistic, idealized alternatives, creating a false dichotomy.

In conclusion, Jameson literally doesn't know what she is talking about. She sees the world through TV sitcoms. With vaccines, she sees the glass as, say 5% empty, rather than as 95% full. Though it's unfortunate that measles vaccine doesn't perfectly protect everyone, it does protect most, preventing unnecessary suffering, hospitalizations, disabilities, and deaths. And, if everyone were vaccinated, then the risks to those with weaker immune systems would also be significantly reduced. In other words, "Don't Sacrifice the Good for the Perfect"!

Acknowledgements

For valuable feedback and suggestions, thanks to: Sandi Berman, PLS; Dorit Rubinstein Reiss, PhD; Steven A. Rubin, PhD, For help in obtaining needed articles and documents, thanks to the Interlibrary Loan Department, San Diego State University.

References

Bandstra R, Meissner U, Warner CY. (1998) Seat-Belt Injuries in Medical and Statistical Perspectives. *National Highway Traffic Safety Agency*. Paper Number 98-S6-W-25. Available at: <http://www-nrd.nhtsa.dot.gov/pdf/Esv/esv16/98S6W25.PDF>

Baylor NW, Marshall VB. (2013) Chapter 73: Regulation and Testing of Vaccines. In Plotkin SA, Orenstein WA, Offit PA (Eds.) *Vaccine*. 6th ed. Elsevier Saunders: 1427-1446.

Bloch AB, Orenstein WA, Stetler HC *et al.* (1985) Health Impact of Measles Vaccination in the United States. *Pediatrics*, 76(4): 524-532.

CDC. (2008 Last Update Aug 20) Measles — Q&A about Disease & Vaccine. Available at: <http://www.cdc.gov/vaccines/vpd-vac/measles/faqs-dis-vac-risks.htm>

CDC. (2011 Jan 7) Vital Signs: Nonfatal, Motor Vehicle-Occupant Injuries (2009) and Seat Belt Use (2008) Among Adults — United States, *MMWR*, 59(51&52). Available at: <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5951a3.htm>

CDC. (2012 May) Chapter 12: Measles, in *Epidemiology and Prevention of Vaccine-Preventable Diseases: The Pink Book* 12th Edition. Available at: <http://www.cdc.gov/vaccines/pubs/pinkbook/downloads/meas.pdf>

CDC. (2012 May) Chapter 4: Vaccine Safety, in *Epidemiology and Prevention of Vaccine-Preventable Diseases: The Pink Book* 12th Edition. Available at: <http://www.cdc.gov/vaccines/pubs/pinkbook/safety.html>

CDC. (2014 Apr) Rotavirus Vaccine (RotaShield®) and Intussusception. Available at: <http://www.cdc.gov/vaccines/vpd-vac/rotavirus/vac-rotashield-historical.htm>

CDC. (2015 Last Updated Jan 12) Current Vaccine Shortages & Delays. Available at: <http://www.cdc.gov/vaccines/vac-gen/shortages/default.htm>

College of Physicians of Philadelphia (last update 2014 July 31). Misconceptions about Vaccines — History of Vaccines. Available at: <http://www.historyofvaccines.org/content/articles/misconceptions-about-vaccines>

Demicheli V, Rivetti A, Debalini MG, DiPietrantonj C. (2012 Feb 15) Vaccines for Measles, Mumps and Rubella in Children. *Cochrane Collaboration*. ABSTRACT Available at: <http://www.ncbi.nlm.nih.gov/pubmed/22336803>

FDA. (2011 Apr 8) Summary Basis for Regulatory Action (RotaTeq). Available at: <http://www.fda.gov/downloads/BiologicsBloodVaccines/Vaccines/ApprovedProducts/UCM251776.pdf>

Goguen, David. (2015) Car Accident Injuries Caused by Seat Belts. *Nolo*. Available at: <http://www.all-about-car-accidents.com/resources/auto-accident/car-accident-injuries/are-car-accident-seat-belt-injuries-compens>

Gomez PL, Robinson JM, Rogalewicz JA. (2013) Chapter 4: Vaccine Manufacturing. In Plotkin SA, Orenstein WA, Offit PA (Eds.) *Vaccine*. 6th ed. Elsevier Saunders: 44-57

Greingor JL, Lazarus S. (2006) Chest and Abdominal Injuries Caused by Seat Belt Wearing. *Southern Medical Journal*, 99(4): 534-525.

Harrison, Joel A. (2015 Jan 7) Another Antivaccinationist Wrong About Genetic Research and Autism: A Review of Teresa Conrick's "Dear America, You Are Being Bamboozled Again About Autism and Genes" (*Age of Autism*, July 23, 2014), Every Child By Two. Available at: http://www.ecbt.org/index.php/facts_and_issues/article/wrong_about_genetic_research_autism_teresa_conricks_dear_america_you_are_be

Hill JR, Mackay GM, Morris Ap. (1994 Feb) Chest and Abdominal Injuries Caused by Seat Belt Loading. *Accident; analysis and prevention*, 26(1): 11-26.

Immunization Action Coalition. (2014 Last Reviewed Jul 31) Ask the Experts: Diseases & Vaccines: Measles, Mumps and Rubella. Available at: http://www.immunize.org/askexperts/experts_mmr.asp

Intas G, Stergiannis P. (2010) Seat Belt Syndrome: A Global Issue. *Health Science Journal*, 4(4): 202-209. Available at: http://hsj.gr/articles_files/0hHDC8K2Bm4TcJH.pdf

Jameson, Cathy. (2015 Jan 18) A Strong Message About Vaccines. *Age of Autism*. Available at: Available at: Available at: Available at: <http://www.ageofautism.com/2015/01/a-strong-message-about-vaccines.html>

Jameson, Cathy. (2015 Jan 25) A Very Brady Measles. *Age of Autism*. Available at: <http://www.ageofautism.com/2015/01/a-very-brady-measles.html>

Levy SB.(1992). *The Antibiotic Paradox: How Miracle Drugs Are Destroying the Miracle*. New York: Plenum Press.

National Highway Traffic Safety Administration. (2013 Nov) Lives Saved in 2012 by Restraint Use and Minimum Drinking Age Laws. Available at: <http://www-nrd.nhtsa.dot.gov/Pubs/811851.pdf>

Offit, Paul (2013) Chapter 76: Vaccine Safety. In Plotkin SA, Orenstein WA, Offit PA (Eds.) *Vaccine*. 6th ed. Elsevier Saunders: 1464-1480

O'Neill, Jim. (2014 Dec). Review on Antimicrobial Resistance. *Antimicrobial Resistance: Tackling a Crisis for the Health and Wealth of Nations*. HM Government/WelcomeTrust. Available at: <http://bsac.org.uk/wp-content/uploads/2014/12/Paper-Antimicrobial-Resistance-tackling-a-crisis-for-the-health-and-wealth-of-nations-EMBARGOED-0001-Dec-11th.pdf> (Accessed December 14, 2014)

Roos, Robert. (2004 Oct 15) None of Chiron's Flu Vaccine is Safe, FDA Says. *Center for Infectious Disease Research and Policy*. Available at: <http://www.cidrap.umn.edu/news-perspective/2004/10/none-chirons-flu-vaccine-safe-fda-says>

Schnayerson M & Plotkin MJ. (2002). *The Killers Within: The Deadly Rise of Drug-Resistant Bacteria*. Boston, MA: Little,Brown.

Skeptical Raptor (2014 May 11) Big Pharma Supports the Antivaccine Movement—the Real Conspiracy. Available at: <http://www.skepticalraptor.com/skepticalraptorblog.php/big-pharma-supports-antivaccine-movement-conspirac-vaccines-maybe-not/> (Accessed January 30, 2015)

Strebel PM *et al.* (2013). Measles Vaccine. In Plotkin SA, Orenstein WA, Offit PA (Eds.) *Vaccine*. 6th ed. Elsevier Saunders: 352-387.

Vaccine Education Center. (2013 Apr) A Look at Each Vaccine: MMR (Measles, Mumps and Rubella) Vaccine. *The Children's Hospital of Philadelphia*. Available at: <http://vec.chop.edu/service/vaccine-education-center/a-look-at-each-vaccine/mmr-measles-mumps-and-rubella-vaccine.html>

Wallace, Amy (2009 Oct 19) An Epidemic of Fear: How Panicked Parents Skipping Shots Endanger Us All. *Wired*. Available at: http://www.wired.com/2009/10/ff_waronscience/all/

Wikipedia, “1918 Flu Pandemic” Available at: http://en.wikipedia.org/wiki/1918_flu_pandemic

Wikipedia, “Influenza” Available at: <http://en.wikipedia.org/wiki/Influenza>

Wikipedia, “Influenza A Virus Subtype H2N2” Available at:
http://en.wikipedia.org/wiki/Influenza_A_virus_subtype_H2N2

Wikipedia, “Measles” Available at: <http://en.wikipedia.org/wiki/Measles>

Wikipedia, “Nirvana Fallacy” Available at: http://en.wikipedia.org/wiki/Nirvana_fallacy

Wikipedia, “Smallpox” Available at: <http://en.wikipedia.org/wiki/Smallpox#History>